

## CLAIMS

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1. A locking device for a wire line core drill comprising an inner tube (2) by means of which core samples are collected, and an outer tube (1) connected to a drill bit, which locking device is applied in the rear end of the inner tube, **characterized** in that the locking device (4) comprises locking members (7, 9) so designed that, when the inner tube has been inserted into the outer tube and has assumed the correct position inside the outer tube for drilling, in one and the same movement it simultaneously effects mechanical locking of the inner tube (2) in relation to the outer tube (1) and mechanical release of a gripping means (10; 25) of an accompanying device (5; 26) connected to the inner tube.
2. A locking device as claimed in claim 1, **characterized** in that the locking device also comprises gripping means (11) that, when the inner tube (2) is to be retracted from the outer tube (1) with the aid of a retriever device (20) comprising gripping means (21), and said gripping means of the retriever device come into contact with the gripping means (11) of the locking device, in one and the same movement, shall engage with the gripping means (21) of the retriever device and simultaneously release the inner tube (2) from its locked position in relation to the outer tube (1).
3. A locking device as claimed in claim 1 or claim 2, **characterized** in that said locking device comprises at least two forward protrusions (7) directed radially outwards and at least two forward protrusions (9) directed radially inwards, said forward outwardly directed protrusions (7) being intended to achieve locking of the inner tube (2) in relation to the outer tube (1) and said forward inwardly directed protrusions (9) being intended to firmly lock the gripping means (10; 25) of the accompanying device (5; 26) during insertion into the outer tube, and to release the gripping means (10; 25) of the accompanying device when the inner tube has assumed its correct position in the outer tube for drilling.
4. A locking device as claimed in claim 3, **characterized** in that it comprises at least two parts, in that each of these parts comprises at least one of said protrusions (7, 9), and in that each of said parts is journalled pivotably in the inner tube (2) in radial direction about a shaft (12) situated between the gripping means (11) of the locking device and its forward protrusions (7, 9) so that the forward protrusions can pivot outwards in radial direction at the same time as the gripping means (11) of the locking device can pivot inwards, and vice versa, whereupon the forward outwardly directed protrusions (7) effect locking of the inner tube (2) in rela-

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tion to the outer tube (1) by pivoting outwards through openings arranged in the inner tube and engage with recesses (8) arranged on the inside of the outer tube, at the same time as the forward inwardly directed protrusions (9) also pivot outwards and mechanically release the gripping means (10; 25) of the accompanying device (5; 26) when the inner tube has assumed the correct position in the outer tube for drilling.

5. A locking device as claimed in claim 3 or claim 4, **characterized** in that to achieve retraction of the inner tube, the gripping means (21) of the retriever device (20) forces the gripping means (11) of the locking device to pivot outwards so that they engage with the gripping means of the retriever device, and the forward protrusions (7, 9) thus pivot inwards so that the forward protrusions (7) disengage with said recesses (8) in the outer tube and thus release the inner tube from its locked position in relation to the outer tube.

6. A locking device as claimed in claim 5, **characterized** in that the gripping means of the locking device comprise at least two rear protrusions (11) directed radially inwards.

7. A locking device as claimed in any one of claims 3-6, **characterized** in that said inner tube (2) of the wire line core drill is provided with a valve (5) for flushing medium, and in that said forward inwardly directed protrusions (9) are designed to mechanically retain and mechanically release a gripping means (10) connected to said valve, whereupon the valve is opened.

8. A locking device as claimed in any one of claims 3-6, **characterized** in that said accompanying device is an insertion device (26) for inserting an inner tube (2) into an outer tube (1), which is provided with gripping means (25), and in that said forward inwardly directed protrusions (9) are designed, in their inwardly pivoted position and during insertion of the inner tube (2) into the outer tube (1), to be in engagement with the gripping means (25) of said insertion device, and assume their outwardly pivoted position when the inner tube has assumed the correct position inside the outer tube for drilling, whereupon the locking device is disengaged from the gripping means (25) of the insertion device, so that said means can be removed together with its insertion device.

9. A wire line core drill system comprising an inner tube (2) by means of which core samples are collected, and an outer tube (1) connected to a drill bit,

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**characterized** in that it is provided with a locking device (4) as claimed in any one of claims 1-8.

10. A method for wire line core drilling using a wire line core drill comprising an inner tube by means of which core samples are collected, and an outer tube connected to a drill bit, which inner tube is provided with a locking device to position the inner tube in the correct position in the outer tube for drilling, and to firmly lock the inner tube to the outer tube in said correct position by means of first locking members, **characterized** in that
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- 10 • the inner tube is inserted into the outer tube, whereupon said first locking members are in a retracted position and second locking members of the locking device mechanically lock a gripping means of an accompanying device connected to the inner tube during insertion, until the inner tube has assumed the correct position in the outer tube, and
  - 15 • when the inner tube has assumed the correct position inside the outer tube the locking device, in one and the same movement simultaneously effects mechanical locking of the inner tube to the outer tube and mechanical release of said gripping means of the accompanying device.

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